

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913062

Fluid

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

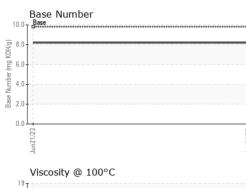
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0069820		
Sample Date		Client Info		21 Jun 2023		
Machine Age	hrs	Client Info		1262		
Oil Age	hrs	Client Info		600		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	10		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel		ASTM D5185m	>5	1		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>2	ں <1		
Aluminum	ppm		>2	1		
Lead	ppm	ASTM D5185m	>20	0		
	ppm			0 19		
Copper	ppm		>330	-		
Tin Vanadium	ppm	ASTM D5185m ASTM D5185m	>15	1 0		
	ppm			-		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	limit/base	current 11	history1	history2
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0	11		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	11 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 0 62		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 0 62 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	11 0 62 <1 952		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	11 0 62 <1 952 1061		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	11 0 62 <1 952 1061 1052	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	11 0 62 <1 952 1061 1052 1258		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	11 0 62 <1 952 1061 1052 1258 2965		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	11 0 62 <1 952 1061 1052 1258 2965 current		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	11 0 62 <1 952 1061 1052 1258 2965 current 8	 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	11 0 62 <1 952 1061 1052 1258 2965 <u>current</u> 8 1	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Jimit/base >25	11 0 62 <1 952 1061 1052 1258 2965 <u>current</u> 8 1 1 <1	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	11 0 62 <1 952 1061 1052 1258 2965 current 8 1 <1 <1	 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	11 0 62 <1 952 1061 1052 1258 2965 current 8 1 <1 <1 current	 history1 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	11 0 62 <1 952 1061 1052 1258 2965 <i>current</i> 8 1 <1 <1 <i>current</i> 0.3 7.0	 history1 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20	11 0 62 <1 952 1061 1052 1258 2965 <u>current</u> 8 1 <1 <1 <u>current</u> 0.3 7.0 18.7	 history1 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 >20 >30 imit/base	11 0 62 <1 952 1061 1052 1258 2965 Current 8 1 <1 current 0.3 7.0 18.7 Current	 history1 history1 history1 history1	 history2 history2 history2



18-Abnormal 17 () 10.00 15. 14. Base

13 Abnormal 12 11 Jun21/23

OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NONE		
		scalar	*Visual	NORML	NORML		
	Appearance Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG		
)°C	Free Water	scalar	*Visual	20.L	NEG		
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.6		
	GRAPHS	001					
	Ferrous Alloys						
	iron						
	8 - nickel						
	6						
	шd						
	4						
	2						
	0						
	Jun21/23			Jun21/23			
	Non-ferrous Meta	als		,			
	20						
	copper lead						
	15 - tin						
	E						
	툡 10-						
	5						
	0						
	1/23 -			1/23			
	Jun21			Jun21/			
		Viscosity @ 100°C					
				10.0	Base Number	****	
	18 - Abnormal						
	17			0.8 0.9 0.9 8 8 8 8 8 9 0 4.0 0 8 8 8 9 0 8			
	() 16 00 15 37 14						
	ts 14						
	12			N ase			
	12			<u>2.0</u>	1		
	11				J.,		
	Jun21/23			Jun21/23	Jun21/23		Jun21/23
	Jun			Jun	Jun		Jun
Laboratory Sample No. Lab Number Unique Numb Certificate L2367 To discuss this sample repor	r : <mark>05984401</mark> mer :10701696 ge :FLEET	Received Diagnos Diagnos	d : 20 (ed : 20 (tician : We	3 GFL Environmental - 418 - Metro/MI East 22001 Hoover Dr Warren, MI US 48089 Contact: JIM HESS jhess@gflenv.com			
* - Denotes test methods tha Statements of conformity to sp	at are outside of the ISO	17025 scc	ppe of accred	litation.	JCGM 106:2012)	j. 10.	T: F:

Contact/Location: JIM HESS - GFL418